

Appl. No. 09/992,642

In the Claims

1-2. (cancelled)

3. (currently amended) A method of enabling dynamic optimization of a computer program, comprising:

5 generating annotation information about said computer program, said annotation information being derived from information held by a compiler about references to individual memory locations; and

10 storing said annotation information with said computer program, said annotation information enabling a dynamic optimizer to optimize said computer program during execution.

15 4. (original) The method of claim 3, wherein generating annotation information comprises generating annotation information enabling replacement of subroutine calls with inline program code in said computer program while said computer program is being executed.

20 5. (original) The method of claim 3, wherein generating annotation information comprises a compiler generating said annotation information.

6. (original) The method of claim 3, wherein said computer program comprises at least one executable file.

7. (original) The method of claim 3, wherein said computer program comprises at least one source file.

25 8. (original) The method of claim 3, wherein said generating annotation information comprises generating

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annotation information derived from runtime architecture and software conventions.

9. (cancelled)

10. (original) The method of claim 3, wherein said
5 generating annotation information comprises generating
annotation information identifying a unique stack pointer
register to be used by said computer program.

11. (original) The method of claim 3, wherein said
10 generating annotation information comprises generating
annotation information comprising a list of non-ambiguous
memory locations.

12. (original) The method of claim 11, wherein said
15 annotation information enables said dynamic optimizer to
obtain canonical names for said non-ambiguous memory
locations.

13. (original) The method of claim 11, wherein said
non-ambiguous memory locations comprise stack frame locations.

14. (original) The method of claim 3, wherein said
20 generating annotation information comprises generating
annotation information comprising a mapping of memory
references to all non-ambiguous locations which are
referenced.

15. (original) The method of claim 3, wherein said
25 generating annotation information comprises generating
annotation information comprising a list of canonical names of
stack frame locations that are promotable.

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16. (original) The method of claim 3, wherein said generating annotation information comprises generating annotation information comprising a guarantee that no stack frame location is live beyond the scope of the stack frame.

5 17. (original) The method of claim 3, wherein said generating annotation information comprises generating annotation information comprising a format and a location of stack unwinding information.

10 18. (currently amended) A method of dynamically optimizing a computer program, comprising:

reading annotation information derived from runtime architecture and software conventions used to compile said computer program, said annotation information being stored with said computer program; and

15 dynamically optimizing said computer program based on said annotation information while said computer program is being executed.

20 19. (original) The method of claim 18, wherein said dynamically optimizing said computer program comprises a binary translator optimizing said computer program.

20. (original) The method of claim 18, wherein said dynamically optimizing said computer program comprises replacing subroutine calls in said computer program with inline program code.

25 21. (original) The method of claim 18, wherein said dynamically optimizing said computer program comprises removing redundant callee-save register restores.

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22. (original) The method of claim 18, wherein said dynamically optimizing said computer program comprises propagating constant arguments within said computer program.

23. (original) The method of claim 18, wherein said
5 dynamically optimizing said computer program comprises promoting local data from a stack frame location to a register.

24. (original) The method of claim 18, wherein said
10 dynamically optimizing said computer program comprises removing redundant callee register saves.

25. (original) The method of claim 18, wherein said dynamically optimizing said computer program comprises removing stack frame allocation.

26. (currently amended) Apparatus for enabling dynamic
15 optimization of a computer program, the apparatus comprising:
one or more computer readable storage media; and
computer executable instructions stored in the one
or more computer readable storage media, the computer
executable instructions comprising:

20 instructions for generating annotation
information about said computer program, wherein
said annotation information enables a dynamic
optimizer to optimize said computer program during
execution, said annotation information being derived
25 from information held by a compiler about references
to individual memory locations; and

instructions for storing said annotation
information with said computer program.

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27. (currently amended) Apparatus for dynamically optimizing a computer program, the apparatus comprising:

one or more computer readable storage media; and
computer executable instructions stored in the one
or more computer readable storage media, the computer
executable instructions comprising:

instructions for reading annotation information
derived from runtime architecture and software
conventions used to compile said computer program,
said annotation information being stored with said
computer program; and

instructions for dynamically optimizing said
computer program based on said annotation
information while said computer program is being
executed.

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